

Holding International Reserves in an Era Of High Capital Mobility

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Summary

Why do countries hold so many international reserves? Global reserve holdings (excluding gold) were equivalent to 17 weeks of imports at the end of 1999. That is almost double what they were at the end of 1960 and about 20% higher than they were at the start of the 1990s. When measured as a share of global income, reserve holdings have also trended upwards. At the end of 1999, reserves were about 6% of global GDP, 3.5 times what they were at the end of 1960 and 50% higher than in 1990.

Countries use international reserves to stabilize the exchange value of their currencies. By standard measures, however, most countries pay less attention to currency stabilization now than they did in the recent past and they pay far less attention to currencies' exchange values than they did in the Bretton Woods era.

In this paper, we study four aspects of reserve holdings: First, we document reserve holding across a broad sample of countries during the post-WWII period. Second, we replicate and update early econometric estimates of countries' reserve-holding behavior. Third, we extend the methods and data used in previous econometric work and adapt the work to the modern capital-markets environment where reserve movements respond to government policies and countries may be subject to speculative attacks on reserve stocks. Fourth, after estimating models constrained tightly by suggested economic theory, we report some exploratory work checking on the power of certain controls to explain recent reserve holdings.

Our results are mixed. Our replication and data extension of previous work, e.g., Frenkel and Jovanavich (*Economic Journal*, 1981) (F&J), indicate that the *buffer-stock* model works about as well using the extended data set as it did for 1970s data. Reserve holdings increase with greater

reserve volatility but do not respond significantly to their opportunity cost. When we look carefully at the data in question, however, it appears that the robustness of the F&J estimate on volatility may be due to some peculiarities in the *shape* of the data's distribution. After we correct for the problems raised by these peculiarities by introducing new data appropriate to an era of high capital mobility, the robustness of the buffer stock model returns. In particular, no matter how we approach the new data, our volatility measure is always a highly statistically significant explanatory variable for reserve holdings.

That said, neither volatility nor any other variable suggested directly by the buffer stock theory explains much of the variation in reserve holdings. In a typical regression (Table 3), country fixed effects plus theory-suggested explanatory variables account for about 85% of the variation of reserve holdings as a share of GNP. Of that 85%, however, about 75% is due to fixed effects. The theory model, therefore, explains only about 10% of reserves/GNP variation.

When we depart from the tight constraints of the buffer-stock model, however, the results are more promising. When we include scaled openness measures among our regressors, the regressors explain over 40% of reserve variation absent fixed effects. These findings suggest that economies more open to trade and/or to financial flows may hold more reserves, on average, because they face higher costs of adjustment should they run out of reserves.